

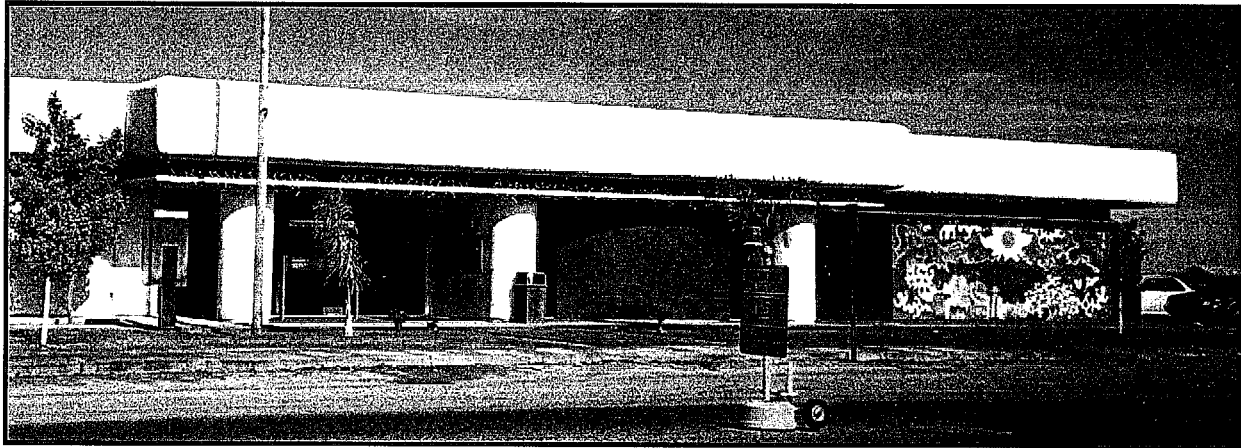


YUMA COUNTY AIRPORT AUTHORITY

Chapter Seven ENVIRONMENTAL EVALUATION

Chapter Seven

ENVIRONMENTAL EVALUATION



Analysis of potential environmental impacts associated with proposed airport development projects is an important component of the Airport Master Plan process. The primary purpose of this chapter is to evaluate the proposed development program for Rolle Airfield to determine whether proposed development actions could individually or collectively affect the quality of the environment.

A major component of this evaluation is to coordinate with appropriate federal, state, and local agencies to identify potential environmental concerns that should be considered prior to the design and construction of new facilities at the airport. Agency coordination consisted of a letter requesting comments and/or information regarding the proposed airport development. Issues of concern that were identified as part of this process are presented in the following discussion. The letters received from various agencies are included in **Appendix B**.

Any major improvements planned for Rolle Airfield will require compliance with the National Environmental Policy Act of 1969, as amended (NEPA) for projects not "categorically excluded" under *FAA Order 5050.4, Airport Environmental Handbook*.

Compliance with NEPA is generally satisfied by the preparation of an Environmental Assessment (EA) or where significant unmitigable impacts are expected, an Environmental Impact Statement (EIS). This section of the Airport Master Plan is intended to supply a review of environmental considerations.

PROPOSED DEVELOPMENT

As a result of the Airport Master Plan analysis, a number of airport improvements have been recommended for implementation over the 20-year planning period. The Airport Layout Plan (**Chapter Five**) illustrates the development proposed during this period. The following is a list of the major projects planned for completion. The timing of these projects is described in **Chapter Six**.

Airfield Improvements

- Extend Runway 17-35 by 2,200 feet to an ultimate runway length of 5,000 feet; widen to 75 feet; and strengthen runway pavement to 30,000 pounds dual-wheel gear loading (DWL).

- Construct a full-length, 35-foot wide parallel taxiway and connecting exit stubs.
- Relocate turnouts/holding aprons to extended ends of runway.
- Implement GPS approach to Runway 17.
- Install an airport rotating beacon.
- Install medium intensity runway lights (MIRLs), runway threshold lights, and precision approach path indicators (PAPI-2s) on Runway 17-35.
- Reapply basic centerline and runway designation markings and holding positions.
- Apply centerline and edge markings to full-length parallel taxiway.
- Install medium intensity taxiway lights (MITLs) on parallel taxiway and exit stubs.
- Install lighted wind cones near extended ends of Runway 17-35.

Landside Improvements

- Construct aircraft parking apron, 14 T-hangar positions, and 6 aircraft tie-

down positions.

- Reserve 820 square feet of space for general aviation/terminal facility site.
- Construct vehicle parking area (18 spaces) adjacent to the general aviation/terminal facility site.
- Reserve airport property parcels for future aviation related and non-aviation related land uses.

Land Acquisition or Easements

- Acquire property or purchase easements to ensure positive control of the RPZs consistent with FAA recommendations.

Other Improvements

- Construct (onsite) Airfield access roads
- Reserve area for future fueling facility and aircraft wash rack/maintenance facility.
- Extend existing Airfield security/perimeter fencing to enclose the proposed T-hangar and aircraft parking apron areas as well as ultimate RPZ areas.

ENVIRONMENTAL CONSEQUENCES-SPECIFIC IMPACTS

The following text briefly examines the airport development actions and their potential to cause significant environmental impact. The following subsections address each of the specific impact categories outlined by *FAA Order 5050.4A*.

NOISE

Aircraft sound emissions are often the most noticeable environmental effect an airport will produce on the surrounding community. If the sound is sufficiently loud or frequent in occurrence, it may interfere with various activities or otherwise be considered objectionable.

To determine noise related impacts that the proposed development could have on the environment surrounding Rolle Airfield, noise exposure patterns were analyzed for the years 2000 and 2020. Year 2000 noise contours are based on an estimated number of aircraft operations since there is no tower located at the Airfield. The 2020 contours represent the highest number of forecast aircraft operations of the 20-year planning period and are based on operations forecasts described in **Chapter Two**.

Noise Contour Development

The basic methodology employed to define aircraft noise levels involves the use of a mathematical model for aircraft noise prediction. The *Yearly Day-Night Average Sound Level (DNL)* is used in this study to assess aircraft noise. DNL is the metric currently accepted by the Federal Aviation

Administration (FAA), the Environmental Protection Agency (EPA), and the Department of Housing and Urban Development (HUD) as an appropriate measure of cumulative noise exposure. These three federal agencies have each identified the 65 DNL noise contour as the threshold of incompatibility, meaning levels below 65 DNL are considered compatible with all underlying land uses. Most federally funded airport noise studies use DNL as the primary metric for evaluating noise.

In addition, the 65 DNL noise contour is identified in Arizona Revised Statute (ARS) §28-8486 (amended under House Bill 2523, Spring 2000) pertaining to all public airports in the State. This statute requires that "The state real estate department shall have and make available to the public on request a map showing the exterior boundaries of each territory in the vicinity of a public airport." With regard to Yuma County and Rolle Airfield, the statute further states that "In counties with a population of five hundred thousand or less, 65 decibels or higher at airports where such an average sound level has been identified in the airport master plan for the twenty year planning period." Pursuant to this recent legislation the Arizona Department of Real Estate has requested that all public airports provide the department with the following data: (1) A map or chart showing the traffic pattern airspace, and (2) an aircraft noise contour map or chart, if available, showing nearby property that experiences a day-night average sound level of 65 decibels or higher.

DNL is defined as the average A-weighted sound level as measured in decibels (dB), during a 24-hour period; a 10 dB penalty is applied to noise events occurring at night (10:00 p.m. to 7:00 a.m.). DNL is a

summation metric which allows objective analysis and can describe noise exposure comprehensively over a large area.

Since noise decreases at a consistent rate in all directions from a source, points of equal DNL noise levels are routinely indicated by means of a contour line. The various contour lines are then superimposed on a map of the airport and its environs. It is important to recognize that a line drawn on a map does not imply that a particular noise condition exists on one side of the line and not on the other. DNL calculations do not precisely define noise impacts. Nevertheless, DNL contours can be used to: (1) highlight existing or potential incompatibilities between an airport and any surrounding development; (2) assess relative exposure levels; (3) assist in preparation of airport environs land use plans; and (4) provide guidance in the development of land use control devices, such as zoning ordinances, subdivision regulations and building codes.

The noise contours for Rolle Airfield were developed from the Integrated Noise Model, Version 6.0. The Integrated Noise Model (INM) was developed by the Transportation Systems Center of the U.S. Department of Transportation at Cambridge, Massachusetts, and has been specified by the FAA as acceptable for federally funded noise analysis.

The INM is a computer model which accounts for each aircraft along flight tracks during an average 24-hour period. These flight tracks are coupled with separate tables contained in the data base of the INM which relate to noise, distances and engine thrust for each make and model of aircraft type selected.

Computer input files for the noise analysis

assumed implementation of the recommended development of the airport as identified on the Airport Layout Plan. The input files contained operational data, runway utilization, aircraft flight tracks, and fleet mix as projected in the plan. Estimates of aircraft operations for the year 2000 and forecasts of future aviation activity in 2020 were used as input to the noise model. For more detailed information on the aviation forecasts for Rolle Airfield refer to **Chapter Two, Aviation Demand Forecasts**.

Basic assumptions used as input to the INM noise model are presented in **Table 7A, Noise Contour Input Data**.

As shown in **Table 7A**, the take-off and landings are split between Runway 17 and 35. In addition, the existing airport is not equipped with lights, which prohibits its use at night. The proposed Airfield improvements include the installation of runway and taxiway lights as well as a rotating airport beacon which will facilitate nighttime operations.

Results of Noise Analysis

Output data selected for calculation by the INM were annual average noise contours in DNL. *FAA Order 5050.4A* recognizes the 65 DNL contours as the threshold of significant impact, indicating that land areas outside of the 65 DNL contour are considered compatible with airport noise. The 60 DNL noise contour is provided to identify the marginal impacts from noise as those areas within the 60 DNL contour band are considered marginally affected by airport noise. No mitigation is required by the FAA within these areas, in accordance with NEPA guidelines.

Table 7A
Rolle Airfield - Noise Contour Input Data

Percentage of Runway Usage			
Year 2000 (4,900 annual operations)		Future - 2020 (5,710 annual operations)	
Runway 17	Runway 35	Runway 17	Runway 35
40%	60%	40%	60%
Percent Day/Night Split of Total Operations (Both Runways Combined)			
Year 2000		Future - 2020	
Day	Night	Day	Night
100%	0%	90%	10%
Note: Operations for 2000 are based on estimates from FAA Form 5010 - Rolle Airfield (Years 1995, 1996, 1998). Year 2020 operations are from forecasts developed by Coffman Associates, Inc.			

The aircraft noise contours generated from aviation forecasts for Rolle Airfield are illustrated on **Exhibit 7A, 2000 Aircraft Noise Exposure** and **Exhibit 7B, 2020 Aircraft Noise Exposure**.

As shown on **Exhibit 7A**, the year 2000 noise contours remain entirely on Airfield property. According to the INM model, the 65 DNL noise contour does not extend beyond either end of Runway 17-35. Also shown, for reference, is the 60 DNL. As illustrated on the exhibit, the 65 DNL does not affect any existing or potential noise sensitive land uses.

By the year 2020, **Exhibit 7B**, Runway 17-35's 65 DNL noise contour is expected to extend approximately 20 feet south from the Runway 35 end, and less than 2 feet north of the Runway 17 end. The 60 DNL extends approximately 60 feet north of Runway 17, and 65 feet south of Runway 35, with a maximum width of ± 410 feet centered on the runway. As previously noted, the 60-65 DNL noise contour range is provided to identify the marginal impacts from noise. Areas within

the 60 to 65 DNL contour band are considered marginally affected by airport noise and no mitigation is required. Like the existing noise exposure conditions, none of the contours for the year 2020 extend beyond existing or proposed Airfield property. The 65 DNL for 2020 depicted does not affect noise sensitive land uses.

Based on 2000 operational levels, the 65 DNL noise contour encompassed less than 0.01 square miles; for the 2020 year forecasts, the 65 DNL and above contour encompasses slightly above 0.01 square miles. **Table 7B, Area of Noise Contour**, reports the estimated size of each contour for the years 2000 and 2020.

As previously discussed, examination of the two noise exposure exhibits reveals that the 65 DNL noise contour does not extend outside the existing or proposed Airport boundary, and, therefore, should not effect any existing or future land uses which may be covered by ARS §28-8486.

TABLE 7B
Area of Noise Contours
Rolle Airfield

Year	Noise Contour Area (in square miles)		
	65 DNL	70 DNL	75 DNL
2000	<0.01	<0.01	<0.01
2020	0.01	<0.01	<0.01

Source: INM, Version 6.0, Coffman Associates analysis.

COMPATIBLE LAND USE

Aircraft noise contours can be used as a guide to determine potential incompatible land uses in the vicinity of airports. To identify noise sensitive land uses potentially impacted by aircraft noise, the noise contours are overlaid on current and future land use maps for the airport and vicinity.

Federal Aviation Regulation (FAR) Part 150 recommends guidelines for planning land use compatibility within various levels of aircraft noise exposure (**Exhibit 7C, Land Use Guidelines**). As the name indicates, these are guidelines only; *FAR Part 150* explicitly states that determinations of noise compatibility and regulation of land use are purely local responsibilities.

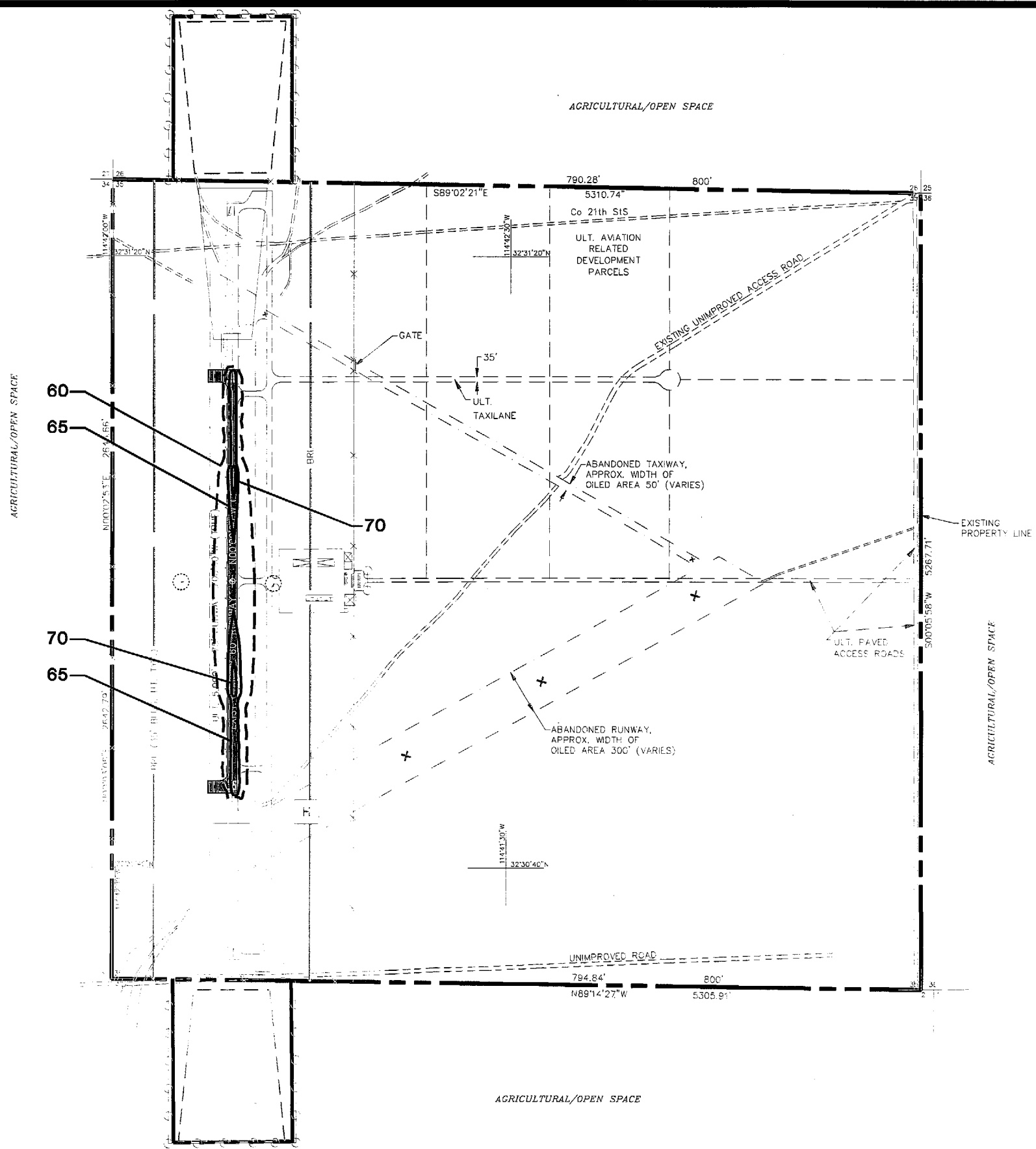
These guidelines indicate that mobile home parks, outdoor music shells and amphitheaters are incompatible within areas affected by noise levels above 65 DNL. The federal guidelines note, however, that where local communities determine that these uses are permissible, sound attenuation measures should be used. Several other uses, including hospitals, nursing homes, churches, auditoriums, livestock breeding, amusement parks, resorts, and camps, are considered incompatible at levels above 75 DNL.

Experience has shown that new residential development should be prohibited in areas subject to noise exceeding 65 DNL, unless local conditions indicate that soundproofed residences would not be adversely impacted by noise. The most obvious condition would be the presence of high background noise levels which are often found in high-density urban areas.

Where existing residential uses occur, further expansion should be discouraged. Measures to mitigate noise impacts should be taken if further residential development cannot be prevented. In some communities where there is a severe shortage of developable land, local governments often are compelled to permit more residential development within the 65 DNL contour. In such cases, the FAA strongly recommends soundproofing. A requirement for noise easements as a condition of development approval might also be desirable.

The Airfield is located approximately four (4) nautical miles northeast of the heart of San Luis and five (5) nautical miles south of the City of Somerton. The Airfield is located in an undeveloped area of San Luis.

Based on the results of the noise modeling efforts, the 65 DNL noise contour for the

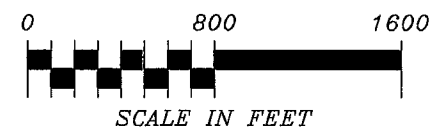
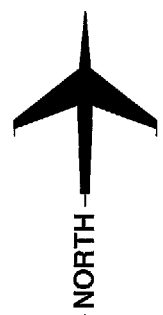


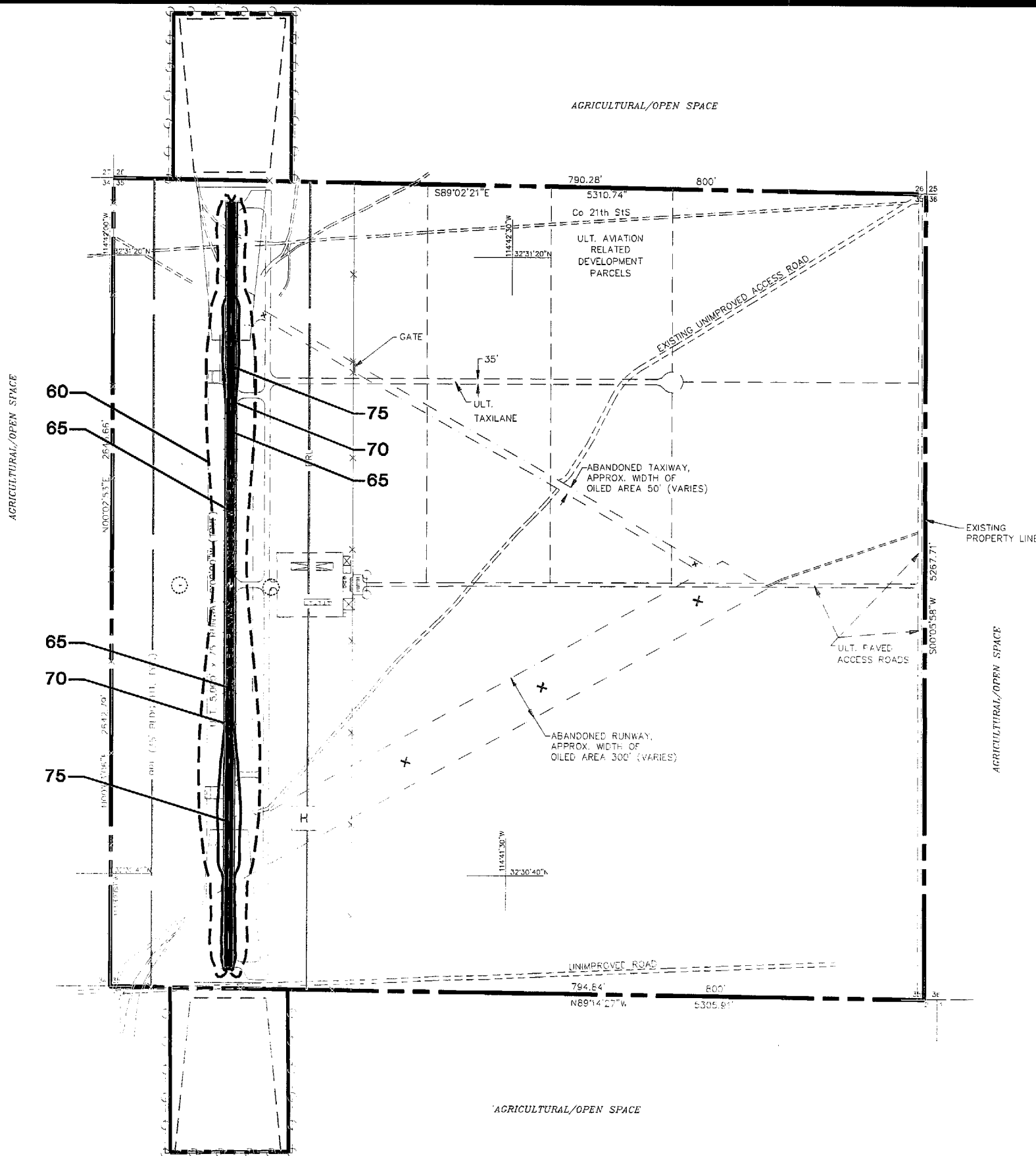
LEGEND		
EXISTING	ULTIMATE	DESCRIPTION
		ABANDONED PAVEMENT
		AIRPORT PROPERTY LINE
		AIRPORT REFERENCE POINT (ARP)
		AIRPORT ROTATING BEACON
		AVIGATION EASEMENT (if applicable)
		BUILDING ABANDONMENT
		BUILDING CONSTRUCTION
		BUILDING RESTRICTION LINE (BRL)
		DRAINAGE
		FACILITY CONSTRUCTION
		FENCING
		NAVIGATIONAL AID INSTALLATION
		RUNWAY END IDENTIFICATION LIGHTS (REIL)
		RUNWAY THRESHOLD LIGHTS
		SEGMENTED CIRCLE/WIND INDICATOR
		SECTION CORNER
		TOPOGRAPHIC CONTOURS (source)
		WIND INDICATOR (Lighted)

LEGEND:

- 65 DNL Noise Contour - 2000
- Existing Airport Property Line
- Ultimate Airport Property Line

Note: DNL 65 is identified as the "threshold of incompatibility for both Federal and State agencies. DNL contour 60 is shown for reference only.



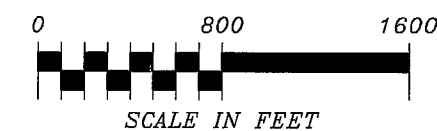
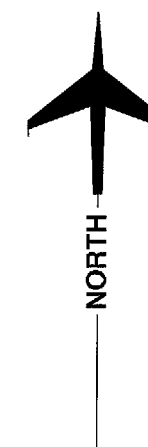


LEGEND		
EXISTING	ULTIMATE	DESCRIPTION
		ABANDONED PAVEMENT
		AIRPORT PROPERTY LINE
		AIRPORT REFERENCE POINT (ARP)
		AIRPORT ROTATING BEACON
		AVIGATION EASEMENT (if applicable)
		BUILDING ABANDONMENT
		BUILDING CONSTRUCTION
		BUILDING RESTRICTION LINE (BRL)
		DRAINAGE
		FACILITY CONSTRUCTION
		FENCING
		NAVIGATIONAL AID INSTALLATION
		RUNWAY END IDENTIFICATION LIGHTS (REIL)
		RUNWAY THRESHOLD LIGHTS
		SEGMENTED CIRCLE/WIND INDICATOR
		SECTION CORNER
		TOPOGRAPHIC CONTOURS (source)
		WIND INDICATOR (Lighted)

LEGEND:

- DNL Noise Contour - 2000
- Existing Airport Property Line
- Ultimate Airport Property Line

Note: DNL 65 is identified as the "threshold of incompatibility" for both Federal and State agencies. DNL contour 60 is shown for reference only.



LAND USE	Community Noise Equivalent Level (DNL) in Decibels					
	Below 65	65-70	70-75	75-80	80-85	Over 85
RESIDENTIAL						
Residential, other than mobile homes and transient lodgings	Y	N ¹	N ¹	N	N	N
Mobile home parks	Y	N	N	N	N	N
Transient lodgings	Y	N ¹	N ¹	N ¹	N	N
PUBLIC USE						
Schools	Y	N ¹	N ¹	N	N	N
Hospitals and nursing homes	Y	25	30	N	N	N
Churches, auditoriums, and concert halls	Y	25	30	N	N	N
Government services	Y	Y	25	30	N	N
Transportation	Y	Y	Y ²	Y ³	Y ⁴	Y ⁴
Parking	Y	Y	Y ²	Y ³	Y ⁴	N
COMMERCIAL USE						
Offices, business and professional	Y	Y	25	30	N	N
Wholesale and retail-building materials, hardware and farm equipment	Y	Y	Y ²	Y ³	Y ⁴	N
Retail trade-general	Y	Y	25	30	N	N
Utilities	Y	Y	Y ²	Y ³	Y ⁴	N
Communication	Y	Y	25	30	N	N
MANUFACTURING AND PRODUCTION						
Manufacturing, general	Y	Y	Y ²	Y ³	Y ⁴	N
Photographic and optical	Y	Y	25	30	N	N
Agriculture (except livestock) and forestry	Y	Y ⁶	Y ⁷	Y ⁸	Y ⁸	Y ⁸
Livestock farming and breeding	Y	Y ⁶	Y ⁷	N	N	N
Mining and fishing, resource production and extraction	Y	Y	Y	Y	Y	Y
RECREATIONAL						
Outdoor sports arenas and spectator sports	Y	Y ⁵	Y ⁵	N	N	N
Outdoor music shells, amphitheaters	Y	N	N	N	N	N
Nature exhibits and zoos	Y	Y	N	N	N	N
Amusements, parks, resorts, and camps	Y	Y	Y	N	N	N
Golf courses, riding stables, and water recreation	Y	Y	25	30	N	N

The designations contained in this table do not constitute a Federal determination that any use of land covered by the program is acceptable under Federal, State, or local law. The responsibility for determining the acceptable and permissible land uses and the relationship between specific properties and specific noise contours rests with the local authorities. FAA determinations under Part 150 are not intended to substitute federally determined land uses for those determined to be appropriate by local authorities in response to locally determined needs and values in achieving noise compatible land uses.

See other side for notes and key to table.



KEY

Y (Yes)	Land Use and related structures compatible without restrictions.
N (No)	Land Use and related structures are not compatible and should be prohibited.
NLR	Noise Level Reduction (outdoor to indoor) to be achieved through incorporation of noise attenuation into the design and construction of the structure.
25, 30, 35	Land Use and related structures generally compatible; measures to achieve NLR of 25, 30, or 35 dB must be incorporated into design and construction of structure.

NOTES

- 1 Where the community determines that residential or school uses must be allowed, measures to achieve outdoor to indoor Noise Level Reduction (NLR) of at least 25 dB and 30 dB should be incorporated into building codes and be considered in individual approvals. Normal residential construction can be expected to provide a NLR of 20 dB, thus, the reduction requirements are often stated as 5, 10, or 15 dB over standard construction and normally assume mechanical ventilation and closed windows year round. However, the use of NLR criteria will not eliminate outdoor noise problems.
- 2 Measures to achieve NLR of 25 dB must be incorporated into the design and construction of portions of these buildings where the the public is received, office areas, noise sensitive areas or where the normal noise level is low.
- 3 Measures to achieve NLR of 30 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas, or where the normal noise level is low.
- 4 Measures to achieve NLR of 35 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas, or where the normal noise level is low.
- 5 Land use compatible provided special sound reinforcement systems are installed.
- 6 Residential buildings require a NLR of 25.
- 7 Residential buildings require a NLR of 30.
- 8 Residential buildings not permitted.

Source : **F.A.R. Part 150**, Appendix A, Table 1.

years 2000 and 2020 do not extend into residential areas. No existing noise sensitive facilities or land uses are significantly affected by the 2000 or 2020 65 DNL noise contours.

SOCIAL IMPACTS

Social impacts known to result from airport improvement projects are often associated with the relocation of residences or businesses or other community disruptions. Development of the proposed improvements is not expected to result in the relocation or removal of any residence or business.

The proposed development and associated land acquisition (or future avigation easement) are not anticipated to divide or disrupt an established community, interfere with orderly planned development, or create a short-term, appreciable change in employment. The additional land required for the proposed airport development is located at the northern and southern end of the existing runway. These areas are needed to ensure compatibility within the RPZs and are currently undeveloped. As discussed in Chapter One, Rolle Airfield is located on land owned by the U.S. Bureau of Reclamation (BOR), and is licensed to and operated by the Yuma County Airport Authority (YCAA). Any future property acquisitions or avigation easements will require an amendment to the existing license agreement or a new license agreement between the BOR and the YCAA.

INDUCED SOCIOECONOMIC IMPACTS

Induced socioeconomic impacts address those secondary impacts to surrounding communities resulting from the proposed development, including shifts in patterns of population movement and growth, public

service demands, and changes in business and economic activity to the extent influenced by the airport development. According to *FAA Order 5050.4A*, "Induced impacts will normally not be significant except where there are also significant impacts in other categories, especially noise, land use or direct social impacts."

Significant shifts in patterns of population movement or growth or public service demands are not anticipated as a result of the proposed development. It is expected, however, that the proposed new Airfield development would potentially induce positive socioeconomic impacts for the community over a period of years. The Airfield, with expanded facilities and services would be expected to attract additional users. It is expected to encourage tourism, industry, and trade and to enhance the future growth and expansion of the community's economic base. Future socioeconomic impacts resulting from the proposed development would be expected to be primarily positive in nature.

AIR QUALITY

The federal government has established a set of health-based ambient air quality standards (NAAQS) for the following six pollutants: carbon monoxide (CO), nitrogen dioxide (NO_x), sulphur dioxide (SO_x), ozone, lead, and PM10 (particulate matter of 10 microns or smaller). According to the Arizona Department of Environmental Quality (ADEQ) Internet web site (www.adeq.state.az.us), Rolle Airfield is located within the Yuma PM-10 Nonattainment Area, a description of which follows:

Yuma PM-10 Nonattainment Area

The Yuma PM10 State Implementation Plan

(SIP) indicates that the two main sources of particulate pollution (dust) are agricultural tilling, and unpaved roads, accounting for nearly 75 percent of the total regional PM10 emissions. Other sources of dust emissions include paved roads, agricultural burning, cleared areas, windblown agricultural land, off road vehicles and unpaved parking lots.

The original Yuma PM10 SIP was submitted to EPA on November 15, 1991, with a subsequent revision being submitted on July 12, 1994. The SIP has been deemed complete and is waiting review and approval by EPA.

Ambient monitoring data reveals that the Yuma area has met the 24-hr and annual PM10 standards for the last several years. The last 24-hr exceedance took place in 1991 with a monitored reading of 229 $\mu\text{g}/\text{m}^3$ and the last annual violation occurred in 1990 with a monitored reading of 57 $\mu\text{g}/\text{m}^3$.

According to *FAA Order 5050.4A* and the handbook "Air Quality Procedures for Civilian Airports and Air Force Bases" Report No. FAA-EE-97-03, if the proposed development is in a state which does not have applicable indirect source review (ISR) requirements, as with Arizona, then projected airport activity levels are examined. Review of the handbook, air quality analysis is not required for Rolle Airfield since the Airfield has less than 180,000 annual general aviation operations forecasted during the 20-year planning period and does not provide commercial passenger service.

The ADEQ, Office of Air Quality was contacted to determine the potential impacts the proposed development would have on air quality. In their response, dated June 1, 2000, they verified the Airfield is located within an air quality nonattainment area and stated that "Air quality permits may be required during construction. Design review of all

improvements should focus on application of Best Management Practices to reduce particulates. Extra paving, gravel mulches, and vegetation are examples of BMP's that could be employed to minimize air quality problems attributable to the facility."

An outline of the measures recommended by ADEQ to minimize possible particulate pollution during construction of the proposed improvements is presented below.

"I. Site Preparation

- A. Minimize land disturbances;
- B. Use watering trucks to minimize dust;
- C. Cover trucks when hauling dirt or debris;
- D. Stabilize the surface of dirt piles and any disturbed areas;
- E. Use windbreaks to prevent any accidental dust pollution.; and
- F. Segregate stormwater drainage from construction sites and material piles.

"II. Construction Phase

- A. Cover trucks when transferring materials; and
- B. Minimize unnecessary vehicular and machinery activities.

"III. Completion Phase

- A. Revegetate any disturbed land not used;
- B. Remove unused material and dirt piles; and
- C. Revegetate all disturbed areas where appropriate."

Also, included with their letter was a copy of the ADEQ Permit Handbook. Applicable state rules are contained in A.A.C. R18-2-604, R18-2-605, R18-2-606, and R18-2-607. The

letter further noted "that portable sources of air pollution such as rock, sand, gravel, and asphaltic concrete plants are required to receive permits from ADEQ to operate in the State."

Finally, because the runway extension allows for a larger class of aircraft to use the Airfield, the governor of the State of Arizona must certify, termed air quality certification, that there is reasonable assurance that any and all proposed airport development is located, designed, constructed, and operated in compliance with the applicable air quality standards. This certificate would be obtained at the time of NEPA compliance.

WATER QUALITY

Water quality concerns, related to airport expansion most often relate to domestic sewage disposal, increased surface runoff and soil erosion, and the storage and handling of fuel, petroleum, solvents, etc. No water or sewer facilities currently exist at the Airfield. Given the Airfield's location, the logical and cost-effective option for potable water service would be an on-site well and related distribution system. Given the type of proposed development, a commercial-type sanitary septic system with a capacity to service the combined airport facilities should be considered and could be implemented in conjunction with the proposed water supply improvements.

The ADEQ Office of Water Quality was contacted but no written response was received. Typically ADEQ notes that their concerns focus on any potential release (i.e., a spill, leak, emission, discharge, escape, leach or disposal) of a regulated substance into the air, groundwater, surface water or subsurface soils.

The Airfield currently does not have fuel storage or aircraft fueling facilities. As growth in aviation activity occurs, fuel storage facilities will become necessary. The recommended fuel storage tank capacity for an airport with the potential number of based aircraft and forecast operation levels at Rolle Airfield is 12,000 gallons. Fuel storage facilities must be designed, constructed and maintained in compliance with Federal, State and local regulations, and must be registered with ADEQ. These regulations include standards for underground storage tank construction materials, the installation of leak or spill detection devices, and regulations for stormwater discharge.

Construction of the proposed improvements will result in an increase in impermeable surfaces and a resulting increase in surface runoff from both landside and airside facilities. The proposed development might result in short-term impacts on water quality, particularly suspended sediments, during and shortly after precipitation events during the construction phase. Recommendations established in FAA Advisory Circular 150/5370-10 *Standards for Specifying Construction of Airports, Item P-156, Temporary Air and Water Pollution, Soil Erosion and Siltation Control* should be incorporated in project design specifications to mitigate potential impacts. These standards include temporary measures to control water pollution, soil erosion, and siltation through the use of fiber mats, gravel, mulches, slope drains, and other erosion control methods.

In accordance with Section 402(p) of the *Clean Water Act*, as added by Section 405 of the *Water Quality Act of 1987*, a *National Pollution Discharge Elimination System* (NPDES) General Permit is required from the Environmental Protection Agency. NPDES requirements apply to industrial facilities,

including airports and all construction projects that disturb five or more acres of land.

With regard to construction activities, Yuma County Airport Authority and all applicable contractors will need to comply with the requirements and procedures of the NPDES General Permit, including the preparation of a *Notice of Intent* and a *Stormwater Pollution Prevention Plan*, prior to the initiation of project construction activities.

The construction program, as well as specific characteristics of project design, should incorporate *Best Management Practices* (BMPs) to reduce erosion, minimize sedimentation, control non-stormwater discharges, and protect the quality of surface water features potentially affected. BMPs are defined as nonstructural and structural practices that provide the most efficient and practical means of reducing or preventing pollution of stormwater. The selection of these practices at Rolle Airfield should be based on the site's characteristics and focus on those categories of erosion factors within the contractor's control, including: (1) construction scheduling, (2) limiting exposed areas, (3) runoff velocity reduction, (4) sediment trapping, and (5) good housekeeping practices. Inspections of the construction site and associated reporting may be required.

Consideration must also be given as to how the Airport would handle waste from any aircraft wash racks, deicing facilities, or maintenance facilities. Of crucial concern would be spills or leaks of substances that could filter through the soils and contaminate groundwater resources.

As with ADEQ, the Department of the Army, Corps of Engineers, was contacted, in their letter dated May 19, 2000 they expressed the following concerns: "That construction activities associated with airport development may require a Department of the Army permit issued under Section 404 of the Clean Water Act. A Section 404 permit would be required for the discharge of dredged or fill material into the "waters of the United States," including adjacent wetlands. Examples of activities requiring a permit are placing bank protection, temporary or permanent stockpiling of excavated material, grading roads, grading (including vegetative clearing operations) that involves the filling of low areas or leveling the land, constructing weirs or diversion dikes, constructing approach fills, and discharging dredged or fill material as part of any other activity."

In addition, an abandoned taxiway and runway system is still present at the Airfield. This configuration, as well as a 300-foot wide area encompassing the existing runway are oil treated areas. As noted in **Chapter Three**, these oiled areas left over from the Airfield's military period should be analyzed from an engineering as well as environmental (affects on water quality) standpoint, and either stabilized or removed.

Finally, because the runway extension allows for a larger class of aircraft, as with air quality, the governor of the State of Arizona must certify, termed water quality certification, that there is reasonable assurance that any and all proposed airport development is located, designed, constructed, and operated in compliance with the applicable water

quality standards. This certificate would be obtained at the time of NEPA compliance.

DEPARTMENT OF TRANSPORTATION ACT, SECTION 4(F) LANDS

Paragraph 47e, *FAA Order 5050.4A* provides the following.

(7)(a) "Section 4(f) provides that the Secretary shall not approve any program or project which requires the use of any publicly-owned land from a public park, recreation area, or wildlife and waterfowl refuge of national, state or local significance, or any land from an historic site of national, state or local significance as determined by the officials having jurisdiction thereof unless there is no feasible and prudent alternative to the use of such land and such program includes all possible planning to minimize harm."

(7)(b) "...When there is no physical taking but there is the possibility of use of or adverse impacts to Section 4(f) land, the FAA must determine if the activity associated with the proposal conflicts with or is compatible with the normal activity associated with this land. The proposed action is compatible if it would not affect the normal activity or aesthetic value of a public park, recreation area, refuge, or historic site. When so construed, the action would not constitute use and would not, therefore, invoke Section 4(f) of the DOT Act."

The closest Section 4(f) lands to Rolle Airfield are the Imperial National Wildlife Refuge, located in California, KOFA National

Wildlife Refuge and Mitty Lake Wildlife Area, both located in Arizona. All of these facilities are located approximately 25 nautical miles to the north of Rolle Airfield. The proposed Airfield improvements are not anticipated to impact any Section 4(f) properties.

HISTORIC, ARCHITECTURAL, ARCHAEOLOGICAL AND CULTURAL RESOURCES

The Arizona State Historic Preservation Officer (SHPO) was contacted regarding the potential presence of historical and cultural resources within the area of the proposed development. In their response, dated June 9, 2000, they stated that "The airfield is located on land under the jurisdiction of the U.S. Bureau of Reclamation (BOR), and will require consultation under the provisions of Section 106 of the National Historic Preservation Act. We will defer comment until we hear from the BOR."

The U.S. Department of the Interior, Bureau of Reclamation (BOR) responded under a separate letter regarding potential cultural resources which may be present at the Airfield. In their letter of June 9, 2000, the BOR stated that "AUX IV (Rolle Airfield) was built in the early 1940's and will need to be evaluated to determine National Register eligibility. In addition, Class III cultural resource surveys and Native American consultations will need to occur prior to any construction activities."

Prior to further development, a survey of the site should be conducted to determine whether any significant resources are present, and whether any mitigation measures are necessary prior to implementation. It is further recommended that local tribal entities be contacted before any ground-disturbing

activity at the Airfield. Following the survey and clearances to proceed with the proposed improvements, should archaeologic resources be encountered during preconstruction or construction activities, work should cease in the area of the discovery and the SHPO be notified immediately, pursuant to 36 CFR 800.11.

BIOTIC COMMUNITIES AND THREATENED AND ENDANGERED SPECIES OF FLORA AND FAUNA

As part of this evaluation, the U.S. Department of the Interior, Fish and Wildlife Service (USFWS), the Arizona Game and Fish Department (AG&F), and the Arizona Department of Agriculture were contacted to request information regarding potential impacts to threatened or endangered species or species of special concern. In addition, two other agencies, the Yuma County Department of Development Services and the Bureau of Reclamation also responded with letters offering their knowledge and concerns as to the condition of the local habitat, wildlife species, soils, etc. for the area in which Rolle Airfield is located.

According to the letter received from the Yuma County Department of Development Services, dated May 11, 2000, "the planning area encompasses a distinct habitat type and supports many species of desert animals (both indigenous and migratory). The proposed plan covers an area within the lower Colorado River Subdivision of the Sonoran Desert and is composed of sandy plains containing microdunes. The vegetation cover consists of Big Galleta Grass (*Hilaria rigida*), Creosote Bush (*Larrea tridentata*), and White Bursage (*Ambrosia dumosa*). Wildlife species that inhabit the area primarily are: Coyote, Kit Fox, Desert Cottontail Rabbit, Collard Lizard,

desert Iguana, Western Whiptail, Western Banded Gecko, Gila Monster, Sidewinder, Kangaroo Rat, Desert Tortoise, Gambel's Quail, Burrowing Owl, Turkey Vulture, and even wild dogs. In addition, the Pacific flyway for migrating birds, ducks, geese and predator species bisects the area. Naturally, these birds use agricultural fields and citrus groves as resting and grazing areas." Additional comments and concerns regarding environmental factors were expressed in their letter and are detailed where applicable elsewhere in this chapter.

In a letter dated May 17, 2000, the USFWS identified the following five (5) federally-listed threatened and/or endangered species and one additional species, covered separately under a conservation agreement, that have been known to exist within Yuma County: *Endangered* - Nichol's Turk's Head Cactus (*Echinocactus Horizonthalonius Var Nicholii*), Sonoran Pronghorn (*Antilocapra Americana Sonoriensis*), Razorback Sucker (*Xyrauchen Texanus*), Southwestern Willow Flycatcher (*Empidonax Traillii Extimus*), Yuma Clapper Rail (*Rallus Longirostris Yumanensis*); the sixth species, the Flat-Tailed Horned Lizard (*Phrynosoma Mcallii*) is protected under a Conservation Agreement which was signed by several state and federal agencies in Arizona and California in June 1997. This agreement established a rangewide management strategy for the Flat-Tailed Horned Lizard. Of these six (6) species, only the Flat-Tailed Horned Lizard has been documented within the immediate vicinity of the proposed Airfield development.

The AG&F responded in a letter dated May 24, 2000 (**Appendix B**). According to the letter, "current records" of the AG&F Heritage Data Management System showed that "special status species have been documented as occurring in the project vicinity." The two special status species identified by AG&F are

the previously mentioned Flat-tailed Horned Lizard (*Phrynosoma Mcallii*), and a native plant species known as Sand Food (*Pholisma Sonorae*). The special status granted to the Flat-Tailed Horned Lizard is **WC (Wildlife of Special Concern)** which is defined as "Species whose occurrence in Arizona is or may be in jeopardy, or with known or perceived threats or population declines, as described by the Department's listing of **Wildlife of Special Concern in Arizona** (WSCA, in prep.). Species included in the WSCA are currently the same as those in **Threatened Native Wildlife in Arizona** (1988)." The special status described to Sand Food is **HS (Highly Safeguarded)** which includes "Those Arizona native plants whose prospects for survival in this state are in jeopardy or are in danger of extinction, or are likely to become so in the foreseeable future, as described by the Arizona Native Plant Law (1993)."

AG&F noted that the Flat-tailed Horned Lizard occurs in the vicinity of the project and that the airfield is on land owned by the Bureau of Reclamation (BOR) which is a signatory agency to the FTHL Rangewide Management Strategy. AG&F recommends coordination with the BOR regarding potential mitigation requirements. They further stated "that Sand Food occurs in the vicinity of this project" and recommended contacting the Arizona Department of Agriculture for additional information on the Arizona Native Plant Law, and how it may apply to this protected native plant species.

The Arizona Department of Agriculture, in their letter dated July 10, 2000, stated "Based on the information provided, the projects are not expected to have any significant adverse impact to protected plant species. The Department recommends that if any protected plants exist on site, they be avoided or transplanted, preferably on site."

Furthermore, the Bureau of Reclamation also noted in their letter that Rolle Airfield "is approximately 2 miles from the Reclamation Yuma Desert Flat-Tailed Horned Lizard (*Phrynosoma Mcallii*) (FTHL) Management Area. Aux IV (Rolle Airfield) has historically been FTHL habitat. FTHL's have been observed on runway pavement."

In conclusion, prior to development, a biological evaluation should be conducted to assess the types of native vegetation to be disturbed by the proposed development and to determine whether any impacts to the above referenced species would be anticipated.

COASTAL MANAGEMENT PROGRAM AND COASTAL BARRIERS

The proposed development of Rolle Airfield is not located within the jurisdiction of a State Coastal Management Program. The Coastal Zone Barrier resources system consists of undeveloped coastal barriers along the Atlantic and Gulf Coasts. These resources are outside of the sphere of influence of Rolle Airfield and its vicinity, and do not apply to the proposed development.

WILD AND SCENIC RIVERS

According to the National Park Service's list of Wild and Scenic Rivers, there are no wild and scenic rivers located within the vicinity of the proposed development at Rolle Airfield; therefore, no impacts to wild and scenic rivers are anticipated as a result of airport development.

WATERS OF THE U.S., INCLUDING WETLANDS

Prior to any development activities, the

YCAA should request a jurisdictional delineation from the U.S. Army Corps of Engineers (ACOE) for the development area including the future proposed airport property. This delineation would identify any waters of the U.S., including wetlands and intermittent streams, under jurisdiction of this agency. As previously discussed under the section on Water Quality, the ACOE, in their letter dated May 19, 2000, stated that if the proposed construction could directly or indirectly affect any waters of the U.S., the project might require a Department of the Army permit per *Section 404* of the *Clean Water Act*. An examination of the USGS 7.5 minute quadrangles, however, reveals no "bluelines" in the area encompassing both existing and proposed Airport property which should negate the requirement for any Section 404 permit.

FLOODPLAINS

As part of the evaluation process, the Flood Insurance Rate Map (FIRM) for the Airfield area was examined. According to Community-Panel Number 0400991050C, Rolle Airfield lies in a "Zone B Special Flood Hazard Area." Zone B is defined as "Areas between limits of the 100-year flood and 500-year flood; or certain areas subject to 100-year flooding with average depths less than one (1) foot or where the contributing drainage area is less than one square mile; or areas protected by levees from the base flood." It is recommended that the Yuma County Airport Authority review surface water management for the airfield property prior to any construction activities in this area.

SEISMIC HAZARDS

In separate letters, both the Arizona State Land Department (May 18, 2000) and the Yuma County Department of Development Services (May 11, 2000) expressed concern over the high seismic hazard risk for the Yuma area. Seismic or geologic hazards are not an environmental category identified for consideration under *FAA Order 5050.4A*; however, due to the Airfield's relative location to both active (San Andreas, Imperial, and Cerro Prieto faults) and potentially active seismic areas (Algodones fault), the subject of seismic hazard warrants consideration. This section provides some background into the issue as it applies to Rolle Airfield and the surrounding area.

Seismic hazards reflect the potential for ground rupture, ground shaking, liquefaction, and lateral spreading, most of which result from earthquakes. While most of these events cause little or no damage, of sufficient magnitude or duration, any of them may result in damage to structures, utilities, and other facilities, and may also change the surface topography and other natural resources of the area.

According to the report *Yuma Community Earthquake Hazard Evaluation, Yuma County, Arizona* (Bausch and Brumbaugh, May 23, 1996) prepared by the Arizona Earthquake Information Center at Northern Arizona University (NAU), the Algodones fault passes through the heart of the Yuma Valley and within 10 kilometers of the City of Yuma. The fault appears to be a continuation

to the southeast of the San Andreas transform fault through southeastern California, southwestern Arizona and northern Sonora, Mexico. The Algodones fault can be traced over a distance of approximately 500 kilometers from the Salton Trough (California) through the northern part of the Gulf of California (Mexico). Epicenters for 1972 through 1996 indicate that the fault appears moderately active throughout its length with a lower level of seismicity at either end. The seismic characteristics of the northern end of the Algodones fault from the Yuma Basin to the head of the Gulf of California are of greatest concern to the Yuma area.

Included in the above referenced report is the seismic zone map of the United States from the 1991 Uniform Building Code (UBC). This map reveals that the Yuma area, including Rolle Airfield, lies within Zone 4 of the national mapping. Seismic zone designations range from 0 to 4, with 4 representing the greatest ground shaking potential. State and local communities are allowed to exceed the UBC requirements based on the local knowledge of their engineering communities. For example requirements are presented in UBC Zone 4 for earthquake resistant design, however, the liquefaction hazard within the Yuma and Gila valleys requires mitigation measures beyond UBC Zone 4 requirements.

The potential for earthquakes in the Yuma area is relatively unknown. However, as recently as May 2, 2000 the U.S. Geological Survey documented three earthquakes located approximately 33 - 40 miles south-southwest of Yuma in the Yuma Desert in Mexico which were in the 4.4 - 4.5 magnitude (Richter Scale) range. Considering the history and number of occurrences along the Algodones fault in the 4.0 magnitude or more, a buildup of strain at the north end of the fault could be

released. Thus, earthquake risk does exist and should be considered with regard to the proposed development at Rolle Airfield.

When movement occurs in a fault zone, surface changes are likely. These may include ground shaking, ground (fault) rupture or liquefaction. The Yuma region has experienced significant liquefaction induced ground failure during historic earthquakes (e.g. 1940 Imperial Valley), and should experience liquefaction damage in the future. The Yuma and Gila valley regions are underlain by conditions that make these regions susceptible to liquefaction. Rolle Airfield lies just east of an area of liquefaction damage from the May 18, 1940 Yuma quake and is in an area identified as being a liquefaction hazard zone.

Liquefaction occurs primarily in saturated, loose, fine to medium-grained soils in areas where the ground water table is 50 feet or less below the ground surface. When these sediments are shaken, such as during an earthquake, a sudden increase in pore water pressure causes the soils to lose strength and behave as a liquid. Excess water pressure is vented upward through fissures and soil cracks causing a water-soil slurry to bubble onto the ground surface. The resulting features are called sand boils, sand blows or "sand volcanoes." Liquefaction-related effects include loss of bearing strength, ground oscillations, lateral spreading, and flow failures or slumping. Ground failure caused by liquefaction is a major cause of earthquake damage. For example, most of the extensive damage caused by the 1964 Alaska and the 1989 Loma Prieta (California) earthquake was a consequence of liquefaction.

Ground shaking describes the earth movements that often occur during earthquakes. Earthquakes occur primarily along faults or folds in areas undergoing

active deformation. When the fault "breaks", the accumulated strain energy is released as seismic waves that cause the ground to "shake" or "quake". The intensity of ground shaking depends largely on the subsurface geologic conditions, whether the geologic foundation is comprised of bedrock (lower intensity) or unconsolidated sediments (higher intensity). Ground shaking can be the precursor to other geologic conditions, such as landslides, rockfalls, and soil liquefaction. Ground shaking from a specific earthquake is commonly measured on the Richter scale, a logarithmic scale similar to that used to measure sound.

The analysis of fault rupture potential also assumes that a fault will slip along the same or nearly the same surface on which the fault last slipped. This assumption is generally true, based on observations from past surface-rupture events that show most ground ruptures follow closely pre-existing fault traces. However, during an earthquake some sections of a fault surface may rupture, while others may not. In conducting a fault-rupture hazard analysis the worst-case scenario is assumed, that is, that during a moderate to major earthquake the subject fault surface will rupture in the area of study. An earthquake producing surface rupture along the segment of the Algodones in the Yuma vicinity could be associated with an earthquake of magnitude 7+.

Surface rupture occurs when part of the stress released during an earthquake ruptures the fault plane at the earth's surface. In general terms, if the displacement is more than a few inches, structures that straddle the fault trace will be damaged or destroyed, since it is very costly to design structures to withstand large vertical or horizontal displacements.

Other ground deformation phenomena associated with a seismic event include offset

of the land surface, local tilting and warping of the ground near the fault, and uplift or subsidence of adjoining areas. Damage due to fault rupture is catastrophic; however, not all surface displacements along faults need to occur suddenly and as a direct result of an earthquake. Fault creep, a slow differential movement or slip, can occur as a result of tectonic processes, or as a result of human activities, primarily the withdrawal of oil, gas or water from within the earth's crust.

As previously discussed, Rolle Airfield is located in an area identified as a liquefaction hazard zone. This means that under certain conditions, including a specific intensity of ground shaking and soils saturated by water, liquefaction of the ground may occur. As the Airfield property is relatively level, liquefaction is not expected to result in landslides in or on the airport. It does, however, have the potential of damaging the pavement surfaces, including the runway and taxiways, and some structures. Therefore, the design and construction of any future airside and/or landside facilities must consider these seismic hazards. Pavement design and construction as it relates to seismic hazards is a function of both local and national proven engineering design practices while any new structures at the Airfield should conform to the 1997 Uniform Building Code (UBC) with regard to earthquake resistant construction.

EXTREME WEATHER CONDITIONS

In their letter dated May 11, 2000 the Yuma County Department of Development Services stated that "The National Oceanic and Atmospheric Administration (NOAA) Hurricane Tracking (Doppler Radar) Site is located approximately 1½ miles south of Rolle Airfield. The City of San Luis and the Yuma Desert area experienced several hurricane-related storms in the early 1990's

and winds were clocked up to 75 mph. Damage was incurred in San Luis, Somerton, Yuma, and the Foothills area in Yuma County. Hurricane storms come north up the Baja California coastline into the Yuma Desert bringing damaging winds and rains especially during the summer season June-September." New structures and facilities at the Airfield should be designed and constructed in accordance with the practices and standards concerning hurricane resistant construction which have been adopted or are currently practiced throughout the County.

FARMLAND

The United States Department of Agriculture, National Resources Conservation Service (NRCS) has general responsibility, nationwide, for implementing the Farmland Protection Policy Act (FPPA). The NRCS reviews projects that may affect prime farmland and wetlands associated with agriculture. In their letter dated May 17, 2000, they stated that "The proposed new project if implemented as planned, is exempt from the requirements of the FPPA - as revised in 1994, that excludes land which is already in or is committed to urban development, currently used as water storage, or land that is not prime or unique farmland." They concluded their letter by saying "We do not see any immediate concerns or impacts that would directly affect wetland areas associated with agricultural activities."

ENERGY SUPPLY AND NATURAL RESOURCES

Basic utilities such as electricity, natural gas, propane, or water service do not currently exist at the Airfield. Rolle Airfield is within the following service areas.

- Water: Municipal Water Company (City of San Luis)
- Electricity: Arizona Public Service (APS)
- Natural Gas: Southwest Gas Corporation
- Propane: Petrolane

Due to the prohibitive cost and logistics of providing municipal water service, the establishment of an onsite water well and potable water distribution system, which considers a future fire suppression system, has been proposed for the Airfield. Most likely this well would exceed a pump capacity of 35 gallons per minute, classifying it as a nonexempt well, which means it may be subject to special requirements. The Arizona Department of Water Resources (ADWR) was contacted by phone concerning the establishment of such a well, and recommended that the YCAA follow the guidelines outlined in their booklet titled *A Practical Guide To Drilling A Domestic Water Well In Arizona* (DWR 37-06, Revised 11/99). This booklet recommends coordination with ADWR when drilling a nonexempt well.

The Yuma County Department of Development Services in their May 11, 2000 letter stated that "The Yuma Desert Watershed encompassing the Airport should also be taken into consideration as part of the development criteria. No surface waters exist in the area and the available groundwater is administered under the jurisdiction of the Bureau of Reclamation (BOR). Currently, there is a discussion between the State of Arizona and the BOR as to appropriation of water rights." Their letter further stated that "The Rolle Airfield is located within the Bureau of Reclamation Lands 5-mile well field Protective Zone." This Protective Zone is better known as the "Colorado River Basin

Salinity Control Protective and Regulatory Pumping Unit", a description of which follows below.

The Protective and Regulatory Pumping Unit is one of three components authorized under Title I of the Colorado River Basin Salinity Control Act. The Protective and Regulatory Pumping Unit is located within a 5-mile-wide strip of land along the United States/Mexico border in southwestern Arizona. The strip of land extends about 13 miles eastward from the vicinity of San Luis, Arizona.

The objectives of the unit are to manage and conserve the United States ground-water resources for the benefit of the United States, and to provide obligated water deliveries to Mexico. The unit has been developed by constructing a well field and delivery system, called the 242 Well Field and Lateral, to intercept part of the ground-water underflow that is moving southward into Mexico from Yuma Mesa in the United States. Major features of the unit consist of a field of 35 wells, the 242 Lateral and connecting laterals, a 34.5-kilovolt transmission line, and attendant facilities.

In accordance with the agreement, each country is limited to pumping no more than 160,000 acre-feet of ground water per year within its 5-mile zone. In Mexico, ground water is pumped by the 63 wells of the San Luis Mesa Well Field. The water is then collected in a canal and conveyed to agricultural lands.

In the United States, the unit well field is planned with a maximum total pumping capacity of 125,000 acre-feet of ground water per year. The legislation also provides that private water users within the 5-mile zone may also use an additional 35,000 acre-feet of

water per year, part of which may be supplied by 10 additional wells which could bring the total to a possible 45 wells. These additional wells may be required primarily for peaking capacity; that is, at any given moment the short-term demand may exceed the capacity of 35 wells.

Therefore, additional coordination regarding establishment of an onsite well at Rolle Airfield will be required with the Bureau of Reclamation as well as the Yuma County Department of Public Health and the Yuma County Assessor's Office.

Permanent electric or natural gas service would require the area service provider to provide hookup service to the Airfield property. Establishing either or both utility services at the Airfield will require coordination between the YCAA, Yuma County, The City of San Luis, and the respective utility service provider.

As discussed in **Chapter Three**, propane service at the Airfield, if desired, could be provided with on-site storage tanks.

In addition, short-term expenditures of additional electricity, fuel, oil, chemicals, water, manpower and other forms of energy and natural resources will be necessary to construct the proposed airport. The use of nonrenewable resources is considered to be an irreversible impact, since these resources are only renewable over long periods of time.

Commitments of labor, fuel and other nonrenewable resources must be made in order to allow for continued maintenance and operation of airport facilities. Impacts of energy supplies and natural resources from the proposed development at Rolle Airfield are not considered to be significant.

LIGHT EMISSIONS

Airfield lighting is an essential element to efficient and safe aircraft operations at an airport during periods of darkness or climatic-related poor visibility. Lighting aids can include: identification lighting (airport beacon), runway/taxiway lighting (e.g., MIRLS/MITLS), lighted airfield (runway/taxiway) signage, visual approach lighting (VASIs/PAPIs), and runway end identification lights (REILs) or runway threshold lights. Currently, no lighting aids are available for use at Rolle Airfield.

The proposed lighting improvements for the 20-year development plan include the installation of Medium Intensity Runway Lighting (MIRL), precision approach path indicators (PAPIs), and runway threshold lights on Runway 17-35, and Medium Intensity Taxiway Lighting (MITL) on the proposed parallel taxiway. In addition, lighted wind indicators would be installed near the ends of Runway 17-35 as well as within the segmented circle, and the Airfield would be equipped with an airport rotating beacon. It is also anticipated that outdoor security lighting would be installed within the automobile parking areas, aircraft parking apron and surrounding all terminal and hangars on the east side of the airport.

Because of the distance from the Airfield to light-sensitive land uses, impacts associated with any new light emissions are not expected to be significant.

SOLID WASTE

An increase in the generation of solid waste is anticipated as a result of the proposed development and overall growth in aviation activity at the Airfield. As discussed in

Chapter Three, should solid waste pickup and disposal at Rolle Airfield be beyond the capabilities of YCAA maintenance services, these services could be contracted with the local service provider.

Furthermore, because landfills can attract birds for feeding, the location of landfills near airports is not desired. According to the Arizona Department of Environmental Quality, Waste Programs Division: Solid Waste Maps & Solid Waste Facilities' Listings (www.adeq.state.az.us) the nearest existing facility is the Cocopah Nation/Somerton facility. This tribal operated landfill accepts wastes from non-tribal communities and is located approximately 5.4 nautical miles northwest of the Airfield. The FAA recommended separation distance between an airport and any such wildlife attractant is 10,000 feet (1.9 miles) for the type of aircraft expected to operate at Rolle Airfield in the future. The Cocopah Nation/Somerton landfill is outside of this area of concern. Additionally, the implementation of the proposed Airfield development is not expected to result in any substantial increases in the generation of solid waste; therefore, no significant impacts to the capacity of this solid waste facility is expected as a result of this project.

CONSTRUCTION IMPACTS

Construction activities have the potential to create temporary environmental impacts at an airport. These impacts primarily relate to noise resulting from heavy construction equipment, fugitive dust emissions resulting from construction activities, and potential impacts on water quality from runoff and soil erosion from exposed surfaces.

A temporary increase in particulate emissions and fugitive dust may result from construction

activities. The use of temporary dirt access roads would increase the generation of particulates. Dust control measures, such as watering exposed soil areas, will need to be implemented to minimize this localized impact. Refer to the section on **Air Quality** near the beginning of this chapter for a more detailed discussion of particulate pollution along with preventive and mitigative measures.

Any necessary clearing and grubbing of construction areas should be conducted in sections or sequenced to minimize the amount of exposed soil at any one time. All vehicular traffic should be restricted to the construction site and established roadways.

The provisions contained in *FAA Advisory Circular 150/5370-10, Standards for Specifying Construction of Airports, Temporary Air and Water Pollution, Soil Erosion, and Siltation Control* will be incorporated into all project specifications. During construction, temporary dikes, basins, and ditches should be utilized to control soil erosion and sedimentation and prevent degradation of off-airport surface water quality. After construction is complete, slopes and denuded areas should be reseeded to aid in the vegetation process.

As previously discussed in the **Water Quality** section, the project design and construction of the proposed development will incorporate Best Management Practices (BMPs) to reduce erosion, minimize sedimentation, and control non-storm water discharges, in order to protect the quality of surface water features on and off the airport. In review, BMPs are defined as nonstructural and structural practices that provide the most efficient and practical means of reducing or preventing pollution of storm water.

CONCLUSION

Based on the review of correspondence provided by various federal, state and local agencies, potential environmental issues and considerations anticipated as a result of the development and operation of Rolle Airfield have been identified. These issues and considerations include the following:

Air Quality - Status of nonattainment should be monitored. Runway extension may require air quality certification in order to comply with NEPA requirements.

Water Quality - Runway extension may require water quality certification in order to comply with NEPA requirements.

Historical/Cultural Resources - Surface Survey should be conducted by qualified specialist(s) prior to any ground-disturbing activity and the results reviewed by the BOR and confirmed by the SHPO. Tribal coordination is also required.

Biotic Communities and Threatened and Endangered Species - Conduct biological survey to evaluate potential impacts to both native plant life and species within the project area.

Wetlands - Request a jurisdictional delineation from the U.S. Army Corps of Engineers for the Airport development area.

Floodplains - Ongoing coordination with Yuma County Flood Control District.

Groundwater - Coordination of on-site well development with the U.S. Bureau of Reclamation, Yuma County Department of Public Health, and Yuma County Assessor's Office.

As a result of the NEPA process, mitigation measures may be recommended to limit the potential impacts related to a number of these resources. Please note that as more specific information is gathered through a formal EA process, additional issues may arise.

Finally, two additional concerns not covered under *FAA Order 5050.4A* have been identified which could significantly impact the development and operation of Rolle Airfield. These issues are as follows:

Seismic Hazards - Design and construction of Airfield pavement and facilities should conform with local and national proven engineering practices as well as the 1997 Uniform Building Code (UBC) with regard to earthquake resistant construction.

Extreme Weather Conditions - Airfield facility and structure designs should conform to hurricane resistant construction standards currently in practice or which have been adopted throughout Yuma County.